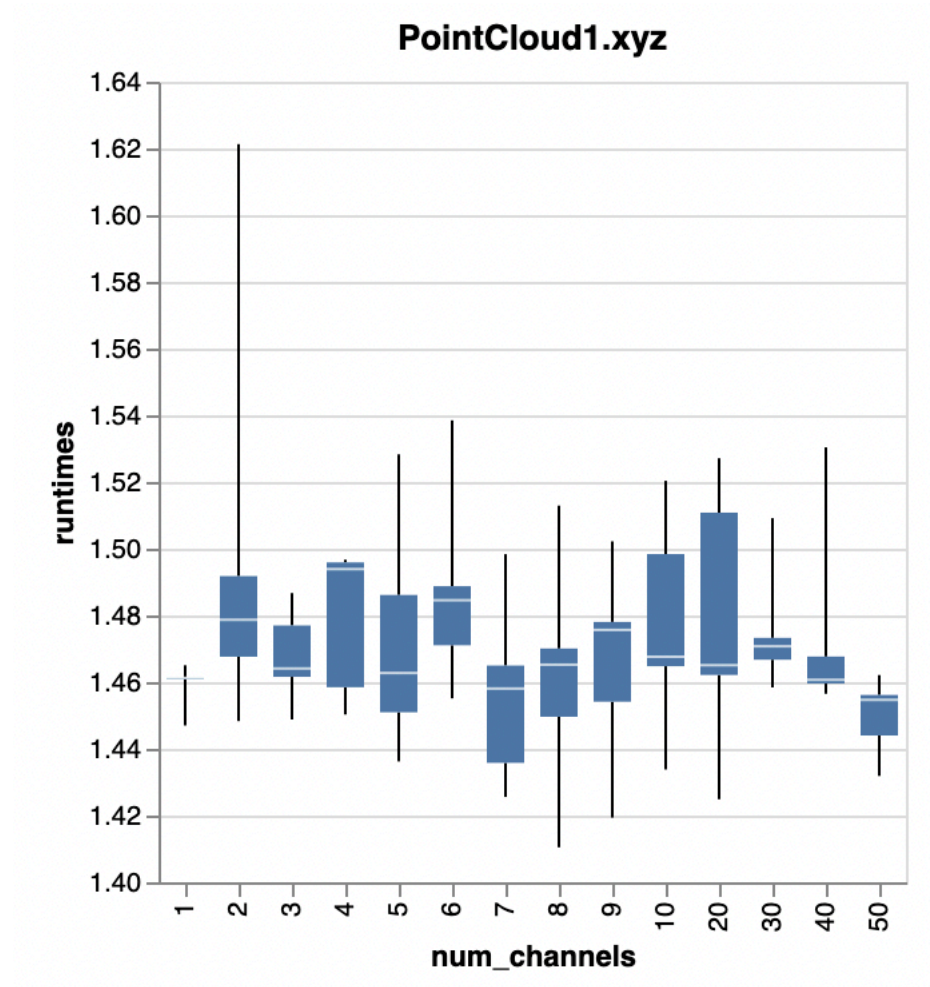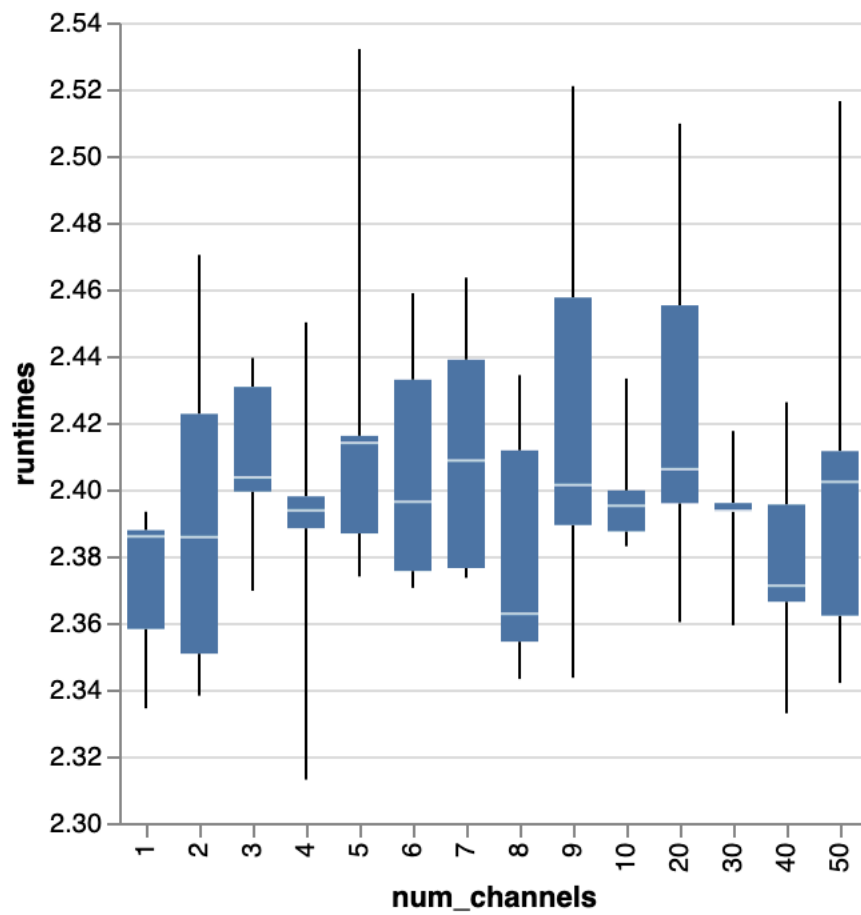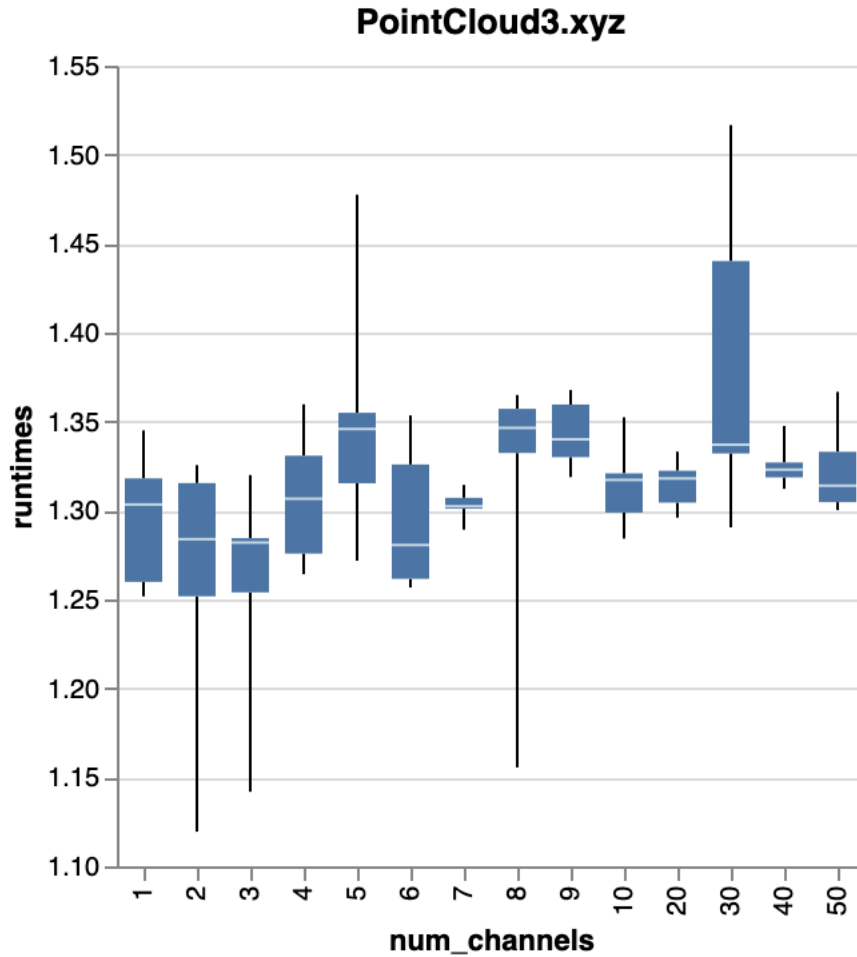In order to determine the optimal number of channels for the FindSupportingPoints() goroutine, I collected 5 samples from each file of points (Point1.xyz, Point2.xyz, Point3.xyz) for each number of channels (1,2,3,4,5,6,7,8,9,10,20,30,40,50). Since there was a significant difference between each file of points, the analysis of the running times was conducted separately for each file. The graphs below show the relationship between the number of channels and the runtime for each file:

PointCloud1.xyz

PointCloud2.xyz

PointCloud3.xyz

These graphs seem pretty inconclusive. In order to better be able to determine which number of channels is optimal I did one-tailed t test (lower tail) comparing the running times of one number of channels with all the other numbers of channels. In the tables below, the p_values for the hypothesis test are shown with the number of channels they represent for each set of points, with the highlighted values being the smallest p-values which show the optimal number of channels:

Number of Channels	P-values for Point1.xyz	P-values for Point2.xyz	P-values for Point3.xyz
1	0.006550806173164307	0.022765829440165187	0.17970953222003289
2	0.8198644576774743	0.3820048042082402	0.17970953222003289
3	0.28274163911411154	0.7162263739545291	0.05735126484680638
4	0.7427752037328543	0.293585383947347	0.37499625349234
5	0.5225334850942467	0.7904889333802074	0.8578388215852737
6	0.8484083337992614	0.6319630647703858	0.19436413379434228

7	0.134731929860069	0.7312212162135399	0.09662488526908185
8	0.27357906507996643	0.153865534025047	0.4791583798491702
9	0.33591963955500553	0.7540893514397461	0.9902740289238914
10	0.6296436365890381	0.4533833806838826	0.5408294074210445
20	0.6279067918720744	0.8143649219413895	0.5599675972687452
30	0.6531079098046355	0.20393578450396688	0.9281200316411258
40	0.5836568618904469	0.10100409462589921	0.9093934592187585
50	==0.002691698513404163==	0.5783486651139467	0.7716782642289792

Since the p-values seem to be scattered around randomly, I am picking the optimal number of channels based on the one with the lowest mean running time. Below is a table showing the mean running times for each number of channels:

Number of channels	Mean running time(s)
1	==1.7088602806==
2	1.7180710528666665
3	1.7108568168
4	1.725013227933333
5	1.7501492056
6	1.7300035889999998
7	1.7238417693333332
8	1.7180524694666666
9	1.7438584638666663
10	1.7304409034666668
20	1.7393773833333335
30	1.7502868444000002
40	1.7263258971333333
50	1.7267694168

Therefore, the optimal number of channels is 1 according to my experiments.